BEFORE THE PUBLIC UTILITIES COMMISSION OF THE

STATE OF HAWAII

In the Matter of PUBLIC UTILITIES COMMISSION Instituting a Proceeding to Investigate the Implementation Of Feed–in Tariffs.	DOCKET NO. 2008-0273

BLUE PLANET FOUNDATION'S COMMENTS ON PROPOSED TIER 3 TARIFF

DECLARATION OF MICHAEL E. CHAMPLEY

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Blue Planet Foundation ("Blue Planet"), by and through its attorneys Schlack Ito Lockwood Piper & Elkind, and pursuant to the Commission's October 29, 2009 Order Setting Schedule, hereby submits its comments ("Comments") on the proposed Tier 3 Tariff submitted on April 29, 2010 by (i) the Hawaiian Electric Company, Inc., Hawaii Electric Light Company, Inc., and Maui Electric Company, Limited (collectively, "HECO Companies"), and (ii) Zero Emissions Leasing, LLC ("Zero Emissions") and Clean Energy Maui ("CEM") (collectively, "Zero Emissions").[1]

I. GENERAL COMMENTS

Although the Commission's landmark Decision and Order filed September 25, 2009 ("D&O") established Hawaii's feed-in tariff ("FIT"), which is among the first in the nation, it contains a handful of statements on pages 44 and 56 which the HECO Companies have consistently overemphasized to the potential detriment of the FIT program. Accordingly, Blue Planet respectfully urges the Commission to reject or modify the HECO Companies' proposed

[1] Blue Planet generally supports adoption of the Zero Emissions tariff, views its key provisions favorably, and submits that language and concepts from the Zero Emissions may serve as a resource to the Commission in adopting the Tier 3 tariff in this proceeding. The remainder of these Comments address the HECO Companies' proposed Tier 3 tariff.

Tier 3 tariff filed April 29, 2010 ("HECO Tariff")[2] to the extent the tariff and its specific provisions unduly emphasize system reliability, economic curtailment, or ratepayer concerns. This is necessary to ensure that the FIT is given a fair opportunity to achieve its stated purpose of dramatically accelerating renewable energy use and development in Hawaii.[3]

A. The Purpose of the FIT Program Is To Accelerate Renewable Energy Development in Hawaii.

The purpose of the feed-in tariff ("FIT") is to remedy the past failures of existing renewable energy procurement mechanisms to timely achieve Hawaii's energy objectives. *See, e.g.*, D&O at 13 ("a FIT is needed for the following reasons: . . . 'only 4% of HECO's sales (Oahu) were supplied by renewable energy, and 96% were supplied by imported fossil fuels.'"); Energy Agreement[4] at 1 ("the future of Hawaii requires" that Hawaii move "more decisively and irreversibly" towards renewable energy).

To remedy these past failures, the FIT is to be designed and implemented to dramatically accelerate renewable energy use in Hawaii. The second sentence of the D&O declares that FITs are approved to "accelerate the acquisition of renewable energy." *Id.* at 1 (emphasis added). The D&O further cites to the Commission's October 24, 2008 Order Initiating Investigation, which likewise affirms:

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[2] For purposes of these Comments, the HECO Tariff consists of (i) the HECO Companies' letter submission ("HECO Letter Brief"), (ii) the "Schedule FIT Tier 3" ("HECO Schedule FIT"), and (iii), the "Hawaiian Electric Companies Tier 3 Power Purchase Agreement" ("PPA").

[3] Blue Planet agrees with the HECO Companies' apparent position that, as a general principle, it may be appropriate for the Commission to consider provisions in the Schedule FIT and/or the PPA which vary or differ to a certain degree from the requirements or directives of the D&O based upon information and analysis subsequent to issuance of the D&O in September 2009. For example, although the D&O requires the Tier 3 tariff to include in-line hydro projects, the HECO Companies now propose that the Commission defer the eligibility of in-line hydro projects for the Tier 3 tariff until at least the first FIT update. *See* HECO Letter Brief at 35. The HECO Companies also now suggest the Commission consider placing an explicit limit to the number of megawatts of concentrated solar power allowed in the FIT program. *Id.*

[4] "Energy Agreement Among the State of Hawaii, Division of Consumer Advocacy of the Department of Commerce and Consumer Affairs, and the Hawaiian Electric Companies" dated Oct. 20, 2008 ("Energy Agreement").

> [The Energy] Agreement is a commitment on the part of the State and the HECO Companies to accelerate the addition of new, clean resources on all islands[.] . . . Included in the Agreement is a commitment by the HECO Companies to implement feed-in tariffs "to dramatically accelerate the addition of renewable energy from new sources" and to "encourage increased development of alternative energy projects."

D&O at 2-3 (emphasis added) (citations omitted); *see also id.* at 5 (Statement of Issues includes best design for FITs to "accelerate and increase the development of Hawaii's renewable energy resources[.]"); *id.* at 14 (according to the parties, a FIT will encourage "accelerated acquisition of renewable energy"); *id.* at 15 (FIT may "accelerate the acquisition of renewable energy"); *id.* at 42-43 (Commission's desire to "accelerate the adoption of renewable energy" outweighs HECO Companies' project size concerns).

A corollary and related purpose of the FIT is to maximize the reduction in consumption of fossil fuels. In the D&O section titled "Role of FITs," the Commission quotes in pertinent part section 269-27.2(b), Hawaii Revised Statutes, which provides statutory authority for the Commission to direct public utilities to acquire electricity from generated from "nonfossil fuel sources" to "maximize the reduction in the consumption of fossil fuels." *Id.* Consistent with the foregoing, the Commission has summarized the general purpose of the FIT and rationale for adopting the FIT as follows:

> Given Hawaii's overdependence on imported fossil fuels for its current electric generation, and the clear benefits a FIT can provide, the commission finds that a FIT should be adopted in Hawaii. There is no other state in the nation that is as dependent on oil as Hawaii is. That oil, which is the primary source of our electric generation, is imported into our State and comes from countries that may not be sympathetic to U.S. interests. A procurement mechanism, such as a FIT, may accelerate the acquisition of renewable energy onto the HECO Companies' systems thereby reducing our State's overall dependence on foreign oil; and produce some certainty as to all the price of electricity will no longer be as heavily tied to volatile oil prices. A

> process that is predictable in setting forth the essential terms under which renewable energy will be purchased by the utilities will, as SA and HSEA assert, reduce "the risk, and hence the cost, of non-utility generated power" and provide economic growth through "green collar" jobs and reduced export of dollars earned to purchase fossil fuels.

D&O at 15-16 (emphasis added).

B. To Achieve the Purpose of the FIT, the Tier 3 Tariff Should Avoid Unduly Emphasizing System Reliability, Curtailment, or Ratepayers Concerns.

Blue Planet respectfully urges the Commission to reject or modify the HECO Tariff to the extent its provisions unduly emphasize statements on pages 44 and 56 of the D&O related to system reliability, economic curtailment and ratepayer impact. Although these are relevant considerations, they should be accorded their proper status among other equally important considerations. They should not be elevated above other relevant considerations and certainly should not be considered as important as the achievement of the fundamental goal of the FIT. Stated otherwise, the goal of the FIT is not to address system reliability, economic curtailment, or ratepayer issues. The goal of the FIT is to accelerate renewable energy use and development to meet Hawaii's energy objectives, and Blue Planet urges the Commission to adopt a tariff that is properly focused on achieving this overarching objective of the FIT program.

1. System reliability.

The HECO Tariff unduly emphasizes system reliability concerns. *See, e.g.*, HECO Letter Brief at 2, 4. The D&O states on page 44 that the HECO Companies "maintain the ability and obligation to refuse to interconnect projects that will substantially compromise reliability[.]" *Id.* (emphasis added). According to the D&O, if FIT projects do not "substantially" compromise reliability, the HECO Companies must interconnect them. The Compact Oxford English Dictionary defines "substantially" as "to a great or significant extent"

and "for the most part; essentially." *Id.* Using this dictionary definition for guidance, the HECO Companies may not refuse to interconnect FIT projects simply because they may compromise reliability. Rather, any FIT project impacts must affect system reliability to a great or significant extent. They must cause reliability impacts "for the most part" and "essentially" – not simply as a relatively minor contributing factor. The Commission's use of the qualifying and limiting term "substantially" suggests the proper weight that this provision, and reliability concerns more generally, should be accorded.

2. Curtailment.

Similarly, under the D&O, the HECO Companies must refuse to interconnect only projects that will "markedly" increase curtailment or "meaningfully" displace existing renewable energy. D&O at 50-51 (emphasis added). Stated otherwise, if FIT projects do not "markedly" increase curtailment or "meaningfully" displace existing renewable generation, then the HECO Companies must interconnect them if they are otherwise eligible for the FIT. Projects having a modest or insubstantial impact on curtailment must be interconnected. The Commission's use of the qualifying and limiting terms "markedly" and "meaningfully" suggest the proper weight this language, and curtailment concerns more generally, should be accorded. As discussed in greater detail below, the HECO Tariff contains onerous curtailment-related provisions based upon misplaced overreliance on this language from the D&O.

3. Ratepayer impact.

The HECO Tariff's provisions should also be rejected or modified to the extent they are based upon implied harm to ratepayers from the FIT. The D&O states on page 44 that the HECO Companies "maintain the ability and obligation to refuse to interconnect projects that will . . . result in an unreasonable cost to ratepayers." D&O at 44. Similar to the reliability and curtailment concerns discussed above, this language is qualified and limited by the term

"unreasonable." More importantly, however, the concern for ratepayers is misplaced insofar as the D&O has concluded that in the long run a FIT will benefit ratepayers. D&O at 14 (citing to Solar Alliance and Hawaii Solar Energy Association's statement that "in the long run (the 20 year term of a FIT contract) the ratepayer will benefit from . . . a decrease in rates[.]" This conclusion is not surprising. Nearly 77% of Hawaii's electricity is from petroleum and consumers spent an estimated $6.21 billion for energy in 2007, or approximately 10% of Hawaii's Gross State Product. State of Hawaii Energy Resources Coordinator Annual Report (2008) at 1-2.[5] Hawaii pays the highest electricity prices in the United States. 2009 Haw. Sess. Laws, Act 155 § 1. The Legislature has concluded the global demand for petroleum has caused severe economic hardships in Hawaii and threatens to impair the public health, safety and welfare. Haw. Rev. Stat. § 196-1(1).

In short, to succeed, the FIT must reduce developer risk relative to other procurement mechanisms which have failed to timely achieve Hawaii's energy policy objectives. Although the FIT entails reliability, curtailment and ratepayer considerations, a tariff that overemphasizes these aspects and introduces provisions that unnecessarily increase developer risk will likely impede achievement of the FIT's purpose. For a successful FIT, Blue Planet respectfully submits that the Commission should avoid giving undue importance to such potential limitations and should instead favor Tier 3 tariff rates and provisions that are reasonably likely to dramatically accelerate renewable energy acquisition and maximize reduction in consumption of fossil fuels, as directed by the D&O.

[5] *Available at* http://hawaii.gov/dbedt/info/energy/publications/erc08.pdf..

II. COMMENTS ON SCHEDULE FEED-IN TARIFF

A. Non-renegotiation Provision (Schedule FIT § B(5)).

Schedule FIT section B(5) states that a seller "may not renegotiate with the Company for any changes to the Schedule FIT Agreement [i.e., the PPA]." This requirement should apply equally to the HECO Companies and the tariff should state that HECO Companies also may not renegotiate for any changes to PPA.

B. Queuing and Interconnection Procedures (Schedule FIT § C).

Schedule FIT section C, "Seller Participation," should be modified as necessary to ensure that it is consistent with the queuing and interconnection procedures adopted in this proceeding.

C. Rates (Schedule FIT § G).

1. HECO modeling (levered).

The HECO modeling, which uses a levered approach, is problematic and produces rates which may not be sufficient to move the market. First, use of a levered model introduces a number of complex assumptions, each of which is a variable in a particular project, particularly with regard to financing. For example, loan terms and conditions, such as interest rate, loan term, debt service coverage ratio ("DSCR"), and amortization schedules will vary depending upon a lender's risk tolerance and aggressiveness, the project's annual cash flows and relative risk level, and the experience and creditworthiness of the developer.

Second, the validity and reliability of the data and information relied upon by the HECO Companies may be questioned. Financing benchmarks were "primarily obtained through the pricing team's conversations with developers and financiers who are heavily involved in the renewable energy industry." HECO Letter Brief at 17. The HECO Companies do not identify

these sources and it is unclear whether the "developers and financiers" have any experience in Hawaii. The HECO Companies also state that these financing benchmarks "were checked against other public processes." *Id.* The HECO Letter Brief refers to and provides links to various the California planning processes. *Id.* at 16. These planning processes were focused on energy planning, however, which provides a relative cost or economic ranking of technologies, and not rate development. Rate development requires more precise modeling and analyses.

Third, the HECO modeling assumptions concerning state tax credits present several related concerns. The HECO modeling assumes monetization of the full 35% state tax credit at closing. It appears most developers do not have sufficient Hawaii passive income to offset and therefore cannot monetize the state tax credit. It is unclear whether developers will be able to locate investors with sufficient state tax liability to fully monetize the 35% State tax credit. In addition, on May 3, 2010, the State of Hawaii Department of Taxation issued Tax Information Release NO. 2010-02 on the subject of further guidance regarding the term "system" for purposes of the Renewable Energy Technologies Income Tax Credit available pursuant to section 235-12.5, Hawaii Revised Statutes ("TIR"). The TIR modifies the availability of the State tax credit. This modification may alter HECO modeling assumptions. The Department of Taxation has provided no similar guidance with regard to tax credits for wind turbines or concentrated solar power. (Indeed, HECO acknowledges that if the Commission determines that the state tax credit cannot be fully monetized, the rate for wind projects would be $146/MWh. HECO Letter Brief at 28.) The 24.5% refundable state tax credit was made available in 2009. Blue Planet is not aware that the State has issued any refundable state tax credit to date. It is unclear whether any such refunds will be issued in full and whether issuance of any such refunds may be delayed.

Fourth, under the HECO modeling, principal repayment and cumulative interest payments to debt holders are back-end loaded with the majority of these payments occurring during the period when there is no positive equity cash flow to provide adequate financial security for debt holders. Equity investor cash flows for FIT solar photovoltaic ("PV") projects are highly front-end loaded. They are usually positive for only years 1-6. The HECO modeling assumes federal and State tax credits and accelerated depreciation benefits are realized and fully monetized in the year generated, and is predicated upon the removal of all equity in the project by year seven. Equity investor cash flows are thus negative from year 7-20. The HECO modeling assumes equity investor cash calls every year after year six and the willingness of project equity investors to continue to do so without modeling any requisite financial protections for debt holders, such as the retention of equity cash flow payout until sufficient debt service cash reserves are created and maintained.

Fifth, as a result of the foregoing the HECO modeling produces highly improbable financial results. The actual year by year debt/equity ratio do not equate to the corresponding input assumptions. Under the HECO modeling, FIT projects are effectively 100% debt financed beyond year 6. This differs from the HECO modeling, which assumes a 35% debt ratio. Table below illustrates the debt and equity cash flow and timing disparities and thus the unrealistic nature of the HECO modeling for Scenario C, which applies equally to other scenarios.

Table 1: Debt Equity and Cash Flow Timing

	Tier 3 Solar PV Scenario C (example)		
Financial Parameters	*35% HI ITC*		*24.5 HI ITC*
Initial Capital Structure ($000)			
Equity Contribution	6,912		6,912
Project Debt Financing	3,722		3,722

Equity Cash Flow ($000)			
Years 1 - 6	8,666		8,460
Years 7 - 20	(2,001)		(971)
Debt Service Requirements ($000)			
Years 1 - 6	2,446		2,446
Years 7 - 20	5,708		5,708

Declaration of Michael E. Champley dated May 17, 2010 at para. 6.

Sixth, the HECO modeling rates do not produce unlevered project returns equivalent to the overall after-tax weighted cost of capital as calculated using HECO's debt and equity capital structure and cost rate assumptions. The rates would do so if the actual model results matched the corresponding capital structure financing assumptions. Unlevered project returns based upon the HECO's proposed Tier 3 FIT rates are in the range of 5-7%. HECO's permanent debt and equity ratio and cost rate assumptions, however, translate into a 9% after-tax overall weighted cost of capital, which corresponds to the unlevered project return level based upon these financing assumptions.[6] The 5-7% unlevered project returns and 9% weighted overall cost of capital differ because the actual year by year project debt ratio deviates substantially from the 35% permanent debt level capital structure assumed by the HECO modeling. The disparity in actual versus assumed capital structure is also evident from the debt and equity cash flow and timing disparities shown in Table 1. The HECO modeling fails to examine the year-by-year capital structures to determine if they remain in balance and consistent with the financing input assumptions.

[6] The capital structure and cost rate assumptions used in the HECO modeling are translated into a 9% after-tax weighted cost of capital as follows: Debt component: 35% debt financing multiplied by 9% interest rate = 3.15%. This figure is then multiplied by 1 minus the combined federal and state income tax rate (i.e., 38.91%), which equals 61.09%, which results in a debt component of 1.92%. Equity component: 65% equity financing multiplied by 11% equity return equals 7.15%. Overall after-tax weighted cost of capital: 1.92% + 7.15% = 9.07%. Dec. of M. Champley at para. 6.

Seventh, the HECO modeling is also predicated upon unrealistic debt financing assumptions. The DSCR was not explicitly modeled or considered by HECO, despite mention of it in the D&O.[7] If the DSCR had been modeled, the resulting DSCR values would have been shown to not support HECO's 35% project debt ratio capital structure assumption. It should also be noted that the HECO Companies' consultant, Energy and Environmental Economics, Inc. ("E3"), contributed to a presentation to the California Public Utilities Commission titled, "Long-term Renewables Planning Methodology, Inputs and Assumptions" dated December 10-11, 2009.[8] This presentation includes a slide titled "Financing Assumptions" which discusses financing for independent power producers and solar projects. The slide states "Different financing for solar projects . . . More equity needed to maintain debt service coverage ratios above 1.5." *Id.* at 28 (emphasis added). The HECO modeling, however, failed to consider DSCR.

Eighth, the HECO modeling debt tenor of the twenty year FIT project life is likely too lengthy. A 10-15 year debt tenor would be more appropriate, assuming adequate DSCR metrics are achieved.

Ninth, the HECO modeling excludes debt service cash reserves, despite language in the D&O identifying such reserves as a relevant debt financing consideration.[9] This is a necessary component of project debt financing. This is particularly true where the equity cash flows are front-end loaded due to the substantial renewable energy tax benefits. A debt service cash reserve would reduce early cash flows available to equity holders. The following table

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[7] The HECO Companies' list of project costs cited in the D&O includes "Lender requirements such as reserves and minimum debt coverage ratios[.]" *Id.* at 60-61 (emphasis added).

[8] *Available at* http://docs.cpuc.ca.gov/PUBLISHED/REPORT/111005.htm.

[9] The HECO Companies' list of project costs cited in the D&O includes "Lender requirements such as reserves and minimum debt coverage ratios[.]" *Id.* at 60-61 (emphasis added).

illustrates the inadequate DSCR metrics and potential debt service cash reserve requirements based upon the median PV project as submitted by HECO.

Table 2: Debt Service Cash Reserves Metrics and Reserves

	Tier 3 Solar PV Scenario C		
Financial Parameters	*35% HI ITC*		*24.5% HI ITC*
DSCRs (EBITDA/Debt Service)			
Average	0.83		1.13
Maximum	1.05		1.37
Minimum	0.57		0.85
Debt Service Cash Reserves ($000)			
2 Years (P&I coverage)	815		815
3 Years (P&I coverage)	1,223		1,223
Percent Year 1-6 Equity Cash Flow			
2 Years (P&I coverage)	9.4%		9.6%
3 Years (P&I coverage)	14.1%		14.5%

Dec. of M. Champley at para. 6.

Tenth, the HECO Companies' target equity return assumption of 11% is likely too low for several reasons. Unlike Tiers 1 and 2 projects, Tier 3 projects will not be interconnected to the grid by means of a standardized or streamlined process, will be required to install SCADA equipment and subject to excess energy and/or performance standard output curtailments, and must comply with the same or similar technical and operational requirements as large purchase power agreement renewable energy projects interconnected to the transmission system. In addition, IRS will be required for all Tier 3 projects, which creates uncertainties with respect to study recommendations for interconnection requirements and project performance criteria. *See, e.g.*, PPA, Attachment B at B-9 to B-14 (project performance standards "may change based on the outcome of the IRS").

The HECO modeling may possibly be corrected to address these model defects and utilize realistic assumptions. Project debt tenor could be limited to ten to fifteen years. The HECO modeling could divert a portion of year 1 equity cash flow to create a DSCR which would not become available to equity holders until project debt is fully retired. The target equity return could be set at the upper range of the HECO Companies' financing benchmark of 10–15%, not the lower end (11%) as was used for Tiers 1 and 2 rates.

2. Blue Planet modeling (unlevered).

Rather than attempting to correct the HECO modeling, however, Blue Planet supports determination of Tier 3 rates on an unlevered project basis. As explained in Blue Planet's January 21, 2010 Comments on the Tiers 1 and 2 tariffs, FIT rates for technologies that are derived from the target Internal Rate of Return ("IRR") for an unlevered project appear most likely to achieve the FIT purpose of dramatically accelerating renewable energy acquisition. The arguments in favor of the unlevered project approach to rate setting set forth in the Tiers 1 and 2 tariff Comments apply with equal force to rate setting for the Tier 3 tariff.

The unlevered project IRR measures the overall rate of return a project would earn regardless of how it is financed (i.e., project returns are not enhanced by using debt leverage). The unlevered project IRR financial metric is widely used to measure the overall economic attractiveness of a project investment and is not affected by how a project is financed. Simply stated, any project investment should stand on its own merit as a viable project regardless of how it is financed or leveraged. By adhering to the basic principle of separating investment and financing decisions, such rate modeling focuses the rate determination by eliminating the need to make assumptions about project financing and credit market conditions. These assumptions relate to volatile credit markets, shifting lender perceptions of the market

conditions, the current interest rate environment, and related local and global market dynamics beyond the project developer's control – all of which may change from the time the rate is set until completion of the initial two-year FIT period. In sum, unlevered modeling results in rates that are likely to achieve the purpose of the FIT.

For illustrative purposes, Blue Planet has conducted rate modeling utilizing the HECO model for FIT rates for Tier 3 projects. For its unlevered rate modeling, Blue Planet has retained the HECO assumptions with the exception of the assumptions concerning debt financing.[10] The appropriate unlevered project IRR target is in the 9-10% range. The capital structure and financing cost rate assumptions used in the HECO modeling translate into a 9% after-tax cost of capital, based on a 11% equity return. This would also translate into an approximately 10% after-tax weighted cost of capital based upon a 13% equity return.

Table 3: FIT Tier 3 Proposed Tariff Payment Rate (c/KWh)

HECO Proposal				**Blue Planet Proposal**		
Renewable Technology	*Proposed Rates*	*Debt Service Coverage*(1)	*Unlevered Project IRR*(1)	*Proposed Rates*(2)	*Debt Service Coverage*	*Unlevered Project IRR*
Solar PV						
35% REITC	19.7	0.81	5.85%	24.4	N/A	9.00%
24.5% REITC	23.6	1.11	6.52%	27.9	N/A	9.00%
CSP						
35% REITC	31.6	1.28	6.59%	36.5	N/A	9.00%
24.5% REITC	33.6	1.43	6.95%	38.2	N/A	9.00%
On-Shore Wind						
20% REITC	12.0	1.41	7.08%	14.1	N/A	9.00%
(1) Represents the scenario midpoint DSCR and unlevered project IRR for each technology (similar						

[10] The D&O does not appear to require rate modeling to be based on levered projects rather than unlevered projects. Although the D&O identifies "financing costs" as a project cost, the D&O also cites to the Department of Business, Economic Development, and Tourism's ("DBEDT") list of project costs which does not include permanent financing costs for a levered project. Similarly, the HECO Companies' list of project costs cited in the D&O includes permanent financing costs but only if such financing is used: "The cost of permanent financing includes making assumptions about . . . the cost of debt (if used)[.] . . . Lender requirements such as reserves and minimum debt coverage ratios should also be considered as applicable." *Id.* at 60-61 (emphasis added).

to HECO's determination of proposed rates based upon midpoint of various scenario LCOEs).
(2) Blue Planet proposed rates based upon the midpoint of the scenario LCOEs with rate based upon 9% unlevered project return. All project capital expenditures and operating costs are identical to those assumed by HECO Companies.

Dec. of M. Champley at paras. 6-7.

Blue Planet agrees with the HECO Companies that it is not appropriate to limit the rates for Tier 3 projects to rates that are no higher than Tier 2 rates. HECO Letter Brief at 20 (explaining basis for proposed Tier 3 rates that are "near or slightly higher than" Tiers 1 and 2 rates). Relatively higher project returns are appropriate for Tier 3 projects due in part to higher developer risk. As noted above, unlike Tiers 1 and 2 projects Tier 3 projects will not be interconnected to the grid by means of a standardized or streamlined process, will be required to install SCADA equipment and subject to excess energy and/or performance standard output curtailments, and must comply with the same or similar technical and operational requirements as large purchase power agreement renewable energy projects interconnected to the transmission system. In addition, IRS will be required for all Tier 3 projects, which creates uncertainties with respect to study recommendations for interconnection requirements and project performance criteria.

As such, the Tier 3 tariff rates should be based upon a 9-10% unlevered project IRR return (which is higher than the 8-9% unlevered project IRR Blue Planet recommended for Tiers 1 and 2 projects in its January 21, 2010 Comments). In the alternative, the required return for common equity should be at the upper range of HECO's financing benchmarks of 10-15%, not the lower end (11%) as was used for Tiers 1 and 2 tariff rate development. The record contains sufficient Hawaii-specific data and information for the Commission to establish Tier 3 rates that are equal to or exceed Tiers 1 and 2 tariff rates.

D. Baseline FIT (Schedule FIT § H).

The Tier 3 tariff adopted by the Commission should establish a Baseline FIT rate for each project size under the FIT consistent with the plain language of the D&O and the FIT policy objective of dramatically accelerating renewable energy acquisition in Hawaii. The plain language of the D&O may be read to require a Baseline FIT rate for each project size established under the FIT. The D&O establishes a Baseline FIT and states that "the baseline rate shall equal the lowest specified FIT rate for any given project size." *Id.* at 36 (emphasis added). Reference to the lowest rate for "any given project size" suggests multiple projects sizes and, correspondingly, multiple Baseline FIT rates. Similarly, the D&O states that "projects using the baseline rate cannot exceed the maximum size limits for FIT projects." *Id.* (emphasis added). Use of the plural "limits," rather than the singular "limit," likewise suggests multiple projects sizes and multiple Baseline FIT rates.

Establishment of a Baseline FIT rate for each project size under the FIT may contribute to the success of the FIT program by increasing number of FIT projects and encouraging the development of relatively inexpensive new technologies. The D&O has concluded that:

> If a technology is inexpensive enough to utilize the baseline rate, and it otherwise complies with the requirements set forth in the FIT tariff, it should be included in the FIT as it would provide a benefit to the State.

D&O at 37. The D&O establishes a total of five project sizes: Tier 1 (<20kW), Tier 2 (>20kW and <100kW), Tier 3 (>100kW and <250kW), Tier 3 (>250 kW and <500 kW), and Tier 3 (> 500 kW and <5000 kW). FIT project developers utilizing the Baseline FIT would therefore have more than one potential rate to consider in developing renewable energy projects under the FIT.

This approach is consistent with the purpose of the Baseline FIT, which the D&O has described as "an effort to encourage other cost effective projects." *Id.* at 36.

The D&O has concluded that in the long run a FIT will benefit ratepayers. D&O at 14. Accordingly, a Baseline FIT rate for each project size, leading to greater development of cost effective renewable energy technologies in Hawaii, will not adversely impact ratepayers. To the contrary, unduly restricting access to the Baseline FIT by offering only one rate – the lowest rate in the entire FIT program – will adversely impact ratepayers by discouraging development of cost-effective technologies and ensuring ratepayers continue to be exposed to volatile and expensive imported fossil fuels in the foreseeable future.

Despite the plain language of the D&O and the FIT policy objective of dramatically accelerating renewable energy in Hawaii, Section H of the Schedule FIT, "Baseline FIT Rate," states that the Baseline FIT rate means "the rate equal to the lowest specified FIT energy payment rate for any project size or technology on any island." *Id.* (emphasis added). For the reasons given above, the Schedule FIT should establish Baseline FIT for each project size under the FIT.

III. COMMENTS ON POWER PURCHASE AGREEMENT

A. General Comments.

The Commission should consider a standard agreement that is simpler, more straightforward, and shorter in length than the HECO Tariff's proposed PPA – which is 74 pages not including lengthy attachments. This approach is supported by the experience in Vermont with its FIT. The standard agreement for the Vermont FIT, "Vermont SPEED Standard Offer Purchase Power Agreement," is a total of thirteen pages in length (excluding attachments).[11] It appears to contain all necessary provisions for implementation of that state's FIT program, with

[11] *Available at* http://psb.vermont.gov/sites/psb/files/standard_contract_Oct_1_revisions.pdf.

provisions pertaining to definitions, effective date, delivery of electricity, site control, milestones, administrative fees and deposits, rates and terms, project location, design, construction and operation, project costs, interconnection, exclusivity, payment, metering, default, termination, force majeure, secured lender rights, and indemnification. Although the D&O direct that "the terms and conditions of the standard offer contracts should, to the extent possible, closely match those of existing negotiated PPAs," *id.* at 87, the Vermont agreement demonstrates that a shorter and more straightforward standard agreement may comply with this requirement.

B. Seller Obligations (PPA 2nd and 4th Whereas Clauses).

Two of the clauses in the PPA, purporting to establish a duty to "maximize overall reliability" on behalf of FIT project developers by means of all "commercially reasonable efforts," are overly burdensome and inappropriate for the Tier 3 tariff in a manner that may hamper success of the FIT program. The PPA's second whereas clause states:

> WHEREAS, the Company System is operated as an independent power grid and must both maximize system reliability for its customers by ensuring that sufficient generation is available and meet the requirements for voltage stability, frequency stability, and reliability standards;

Id. at 1 (emphasis added). This clause is unnecessary surplusage insofar as all Hawaii electric utilities are required to ensure system reliability as part of their normal operations. Moreover, this clause refers to requirements for voltage and frequency stability and "reliability standards." The HECO Companies have testified they do not utilize a formal reliability standard for frequency and voltage. *See, e.g.*, Transcript of April 13-17, 2009 Panel Hearing (Docket No. 2008-0273), Vol. I at 206, Lines 19-21 ("And we don't – at this time we don't have those types of reliability standards or metrics."); Vol. I at 197, lines 19-23 ("At this time for the – the HECO companies there is no standard, per se, like a plus or minus frequency deviation, or three outages

per year due to variable generation. There is no – none of those types of quantifiable criteria."); *see also* Vol. I at 182, lines 7-20; Vol. I at 189, lines 19-22.

The PPA's fourth whereas clause, which states that "Seller understands the need to use all commercially reasonable efforts to maximize the overall reliability of the Company System," is similarly problematic. *Id.* As explained above, the HECO Companies currently do not operate under formal reliability standards. The effect of the proposed requirements concerning commercially reasonable efforts is to undercut the FIT's basic premise of revenue certainty by allowing the utilities to find a FIT project in violation of the PPA based on an unacceptably wide range of evaluative decisions.

C. Definitions, "Environmental Credits" (PPA at 6).

The definition of "Environmental Credits" should be amended to state that governmental subsidies, grants, rebates and refunds are excluded from the definition.

D. Acceptance Test (PPA Art. 1)

The HECO Companies' approval of the Acceptance Test should be subject to a reasonableness standard. Under the PPA, operation of the renewable facility in parallel with HECO's facility is proposed to be contingent upon the "satisfactory completion, as determined solely by [HECO], of the Acceptance Test." PPA Art. 1. Approval should be governed by a reasonableness standard rather than subject to a utility's sole discretion.

E. Forecasting (PPA Art. 6).

The PPA should avoid overly-burdensome forecasting requirements. Intermittent resources could vary significantly with the weather conditions and it may be difficult for a developer to accurately predict weather conditions for extended time periods. Requiring the developer to update its forecast for any change places an unreasonable and unnecessary burden

upon the developer, particularly where the change has not material or practical effect upon the generation of Actual Output. To minimize potential disputes, the HECO Companies should be required to identify the requested types of data and information.

F. Curtailment (PPA § 8.1).

Section 8.1 contains curtailment language that that is onerous, overreaching, and likely to render the FIT unattractive by unacceptably increasing developer risk and jeopardizing revenue uncertainty. Under section 8.1:

> General. The Company may require the Seller to temporarily curtail, interrupt or reduce deliveries of energy . . . if . . . the Facility does not operate in compliance with Good Engineering and Operating Practices or acceptance of energy from the Seller by the Company would require the Company to operate the Company System outside of Good Engineering and Operating Practices which in this case shall include, but not be limited to, excessive system frequency fluctuations or excessive voltage deviations, and any situation that the Company System Operator determines, at his or her sole discretion, could place in jeopardy system reliability.

Id.(emphasis added).

This language gives excessive discretion to the HECO Companies and introduces unacceptable levels of developer risk of curtailment. Curtailment for "any situation that the Company System Operator determines, at his or her sole discretion, could place in jeopardy system reliability" is not necessary insofar as system reliability and safety concerns are addressed by reliability standards and Rule 14H. *Id.* (emphasis added). This is an example of language that goes too far and therefore may undermine the essential viability of the FIT. At a minimum, a clear definition of what constitutes "excessive" system frequency and voltage fluctuations must be established through objective and measurable formal reliability standards subject to Commission review and approval.

The PPA's definition of "Good Engineering and Operating Practices" grants further excessive discretion to the HECO Companies. The term is defined as follows:

> "Good Engineering and Operating Practices": The practices, methods and acts engaged in or approved by a significant portion of the electric utility industry for similarly situated U.S. facilities that at a particular time, considering Company's isolated island setting and other characteristics, that at a particular time, in the exercise of reasonable judgment in light of the facts known or that reasonably should be known at the time a decision is made, would be expected to accomplish the desired result in a manner consistent with law, regulation, reliability for an island system, safety, environmental protection, economy and expedition.
>
> With respect to the Facility, Good Engineering and Operating Practices include, but are not limited to, taking reasonable steps to ensure that:
>
> (1) Adequate materials, resources and supplies, including fuel, are available to meet the Facility's needs under normal conditions and reasonably anticipated abnormal conditions;
>
> (2) Sufficient operating personnel are available and are adequately experienced and trained to operate the Facility properly, efficiently and within manufacturer's guidelines and specifications and are capable of responding to emergency conditions;
>
> (3) Preventive, routine and non-routine maintenance and repairs are performed on a basis that ensures reliable long-term and safe operation, and are performed by knowledgeable, trained and experienced personnel utilizing proper equipment, tools, and procedures;
>
> (4) Appropriate monitoring and testing is done to ensure equipment is functioning as designed and to provide assurance that equipment will function properly under both normal and emergency conditions; and
>
> (5) Equipment is operated in a manner safe to workers, the general public and the environment and in accordance with equipment manufacturer's specifications, including, without limitation, defined limitations such as steam pressure, temperature, moisture content, chemical content, quality of make-up water, operating voltage, current, frequency, rotational speed, polarity, synchronization, control system limits, etc.

Id. (emphasis added).

As Blue Planet noted in its comments on the HECO Companies' proposed Tiers 1 and 2 tariff, this lengthy provision injects a host of discretionary evaluations by the HECO Companies upon which curtailment of energy may be imposed. For example, the HECO Companies may curtail a facility if they deem it to have failed to "exercise of reasonable judgment in light of the facts known or that reasonably should be known at the time a decision is made" with regard to operating practices. *Id.* Curtailment may be imposed for what the HECO Companies deem to be an inadequate fuel supply, insufficient operating personnel and inadequately experienced or trained personnel, the schedule on which maintenance is conducted, equipment testing, and safe operation of equipment. In addition, the definition states that such practices "include, but are not limited to" the enumerated items. Thus, a FIT project developer is exposed to potential curtailment for failing to comply with certain Good Engineering and Operating Practices about which it may not be aware at the time of the alleged failure to comply. By contrast, good engineering and operating practices for U.S. mainland electrical energy facilities place reasonable limits on utility discretion because there are extensive formal and transparent electric reliability standards and operating practices, independent system operators, and extensive regulatory oversight of grid operations.

As section 8.1 affirms, the HECO Companies shall not be required to pay for energy that is curtailed pursuant to this section. A tariff that includes such an onerous provision undercuts the FIT's basic premise of revenue certainty by allowing the utilities to curtail a facility for an unacceptably wide range of evaluative decisions. To ensure a successful FIT, Blue Planet therefore respectfully submits that section 8.1 and the definition of Good Engineering and Operating Practices should be substantially revised or omitted from the Tier 3

tariff adopted by the Commission in this proceeding. In the alternative, the Commission may consider establishing a lower limit to the amount of curtailment any FIT project may be subject to, or requiring that expedited independent third party review be made available in cases of dispute over curtailment.

G. Negative Avoided Cost and Economic Dispatch (PPA §§ 8.2, 8.3).

The Tier 3 tariff should omit sections 8.2 and 8.3, concerning negative avoided cost and economic dispatch, in the interest of reducing developer risk and achieving the purpose of the FIT program. Section 8.2 states that:

> The Company shall not be required to purchase energy during any period during which, due to operational circumstances, purchases from the Seller will result in costs greater than those which the Company would incur if it did not make those purchases, but instead generated an equivalent amount of energy itself. . . . Company and Seller acknowledge that this Section 8.2 (Negative Avoided Cost) is based upon 18 CFR § 292.304(f) of the Regulations under PURPA issued by the Federal Energy Regulatory Commission and § 6-74-24 of the Standards for Small Power Production and Cogeneration issued by the PUC.

Id. (emphasis added). Section 8.3 states that:

> This Article 8 (Continuity of Service) of this Agreement is not intended to permit Company to require Seller to curtail, interrupt, or reduce deliveries of electric energy based on Company's economic dispatch (for example, as a consequence of Company's filed Avoided Energy Cost Data being lower than the applicable price per MWh paid to Seller under this Agreement, or to make purchases of less expensive electric energy from a Qualifying Facility.

Id. (emphasis added).

First, even if the cited federal and State regulations apply,[12] they merely authorize but do not require the utility to refrain from purchasing electrical energy in negative avoided cost

[12] This section states that it is based on 18 CFR 292.304(f). It is unclear whether this administrative rule, which governs Qualifying Facilities under PURPA, also properly applies to FIT projects.

situations. Section 6-74-24, Hawaii Administrative Rules states that an electric utility "shall not be required to purchase," and 18 C.F.R. § 292.304(f) similarly states that an electric utility "will not be required to purchase," electric energy in a negative avoided cost situation. *Id.*; *see also* HECO Companies' Response to DBEDT/HECO-IR-11 at 2 (utility "is not required" to purchase electric energy). The HECO Companies therefore have no legal obligation under the applicable administrative rules to not purchase electrical energy in negative avoided cost situations.

Second, the HECO Companies admit they have no Commission-approved methodology to determine negative avoided cost for Commission approval. *See* HECO Companies' Response to DBEDT/HECO-IR-11 at 2. Third, the necessity for this type of curtailment is unclear and must be weighed against the impact of multiple curtailment provisions on developer risk and the viability of the FIT. Fourth, it is discriminatory insofar as utility generation is not subject to curtailment. Fifth, although the D&O authorizes the HECO Companies to refuse to interconnect projects that result in an "unreasonable cost to ratepayers," it does not appear to authorize curtailment based on ratepayer impact and the authority for this provision in the D&O is unclear. The D&O has concluded that in the long run a FIT will benefit ratepayers. D&O at 14. Thus, the FIT has economic value to ratepayers which may be greater than any economic benefit derived from implementation of this provision. Sixth, the necessity for this type of curtailment from a potential systems reliability perspective is unclear and must be weighed against the impact of multiple curtailment provisions on developer risk and the viability of the FIT.

Finally, the D&O has concluded that in the long run a FIT will benefit ratepayers. D&O at 14. Thus, the FIT has economic value to ratepayers. The economic value of the FIT to ratepayers over long run – which relies on the successful launch of the FIT in the initial two-year

period – may be greater than any economic benefit derived from implementation of this provision. To ensure a successful FIT, Blue Planet respectfully submits that section 8.2 should be substantially revised or omitted from the PPA. Section 2.1 of the PPA requires the FIT project to sell to the HECO Companies its Actual Output of electricity. Article 20 of the PPA similarly does not allow the developer to sell electricity to any third parties. Thus, if sections 8.2 and 8.3 remain in the PPA, investment will be discouraged and the FIT may be unable to meaningfully contribute toward achievement of State energy objectives.

H. Sale of Energy to Third Parties (PPA Art. 20),

In light of the HECO Companies' broad curtailment rights, the Commission should reconsider application of the language of the D&O concerning sale of renewable electricity to third parties. It is proposed that, during times of curtailment or when the HECO Companies do not otherwise purchase all of the project's energy output, the developer should be permitted to consume energy produced at the project for the developer's own use, transmit energy to the developer's other facilities or properties for use by the developer, and/or transmit energy to the developer's affiliates or subsidiaries for their use.

I. Seller's Representations and Warranties (PPA § 22.2).

Any representation by the FIT project developer required under the PPA concerning the legal requirements of the Hawaii Renewable Portfolio Standards law, section 269, Part V, Hawaii Revised Statutes, should be limited to the requirements of that law on the execution date of the PPA.

J. Land Rights (PPA at G-10).

The D&O does not appear to authorize the HECO Companies to review and approve a developer's land rights and the seller should be required only to make a representation or warranty that it has land rights or provide a short form copy of Lease.

DATED: Honolulu, Hawaii, May 20, 2010.

DOUGLAS A. CODIGA
Attorney for Blue Planet Foundation

BEFORE THE PUBLIC UTILITIES COMMISSION OF THE

STATE OF HAWAII

In the Matter of PUBLIC UTILITIES COMMISSION Instituting a Proceeding to Investigate the Implementation Of Feed–in Tarriffs.	DOCKET NO. 2008-0273

DECLARATION OF MICHAEL E. CHAMPLEY

I, MICHAEL E. CHAMPLEY, declare and say:

1. I am the principal of Kahakuloa Energy Advisors LLC, an energy consulting firm which advises clients on strategic, regulatory policy and operational issues primarily related to electric resource planning.

2. I hold degrees in engineering and business and have served as Senior Vice President – Regulatory Affairs, Senior Vice President – Power Supply, and Vice President – Marketing, and corporate officer and/or director of non-utility energy marketing and project development affiliates at DTE Energy, Detroit, Michigan from 1971 through 2006.

3. I have extensive professional experience in industry restructuring, regulatory strategy, financial and strategic planning, retail and wholesale energy marketing, generation supply planning, development and operations and utility performance management.

4. I serve as a professional consultant to Intervenor Party Blue Planet Foundation ("Blue Planet") in the State of Hawaii Public Utilities Commission Docket No. 2008-0273 concerning implementation of feed-in tariffs ("FIT").

5. This declaration is based upon my personal knowledge and, where stated, upon my reasonable belief and information and I am competent to testify as to the matters stated in this declaration.

6. My professional consulting services to Blue Planet in this proceeding include reviewing and analyzing technical data and information, and performing calculations and analyses, for purposes of Blue Planet Foundation's Comments ("Comments") on the Hawaiian Electric Company, Inc., Hawaii Electric Light Company, Inc., and Maui Electric Company, Limited's (collectively, "HECO Companies") Tier 3 Tariff filed April 29, 2010, including each of the three tables included in the Comments, denominated as Tables 1 through 3, and any and all related financial analyses and calculations, especially those pertaining to the modeling and analysis of FIT rates using levered and unlevered models.

7. On behalf of Blue Planet I conducted rate modeling utilizing the Black & Veatch model distributed by the HECO Companies to the parties in Docket 2008-0273 and the assumptions employed by the HECO Companies. For this modeling, the HECO Companies' assumptions have been retained, with the exception of the assumptions concerning debt financing which were changed to result in the modeling of rates for an unlevered, rather than levered, project.

I, MICHAEL E. CHAMPLEY, do declare under penalty of law that the foregoing is true and correct.

DATED: Honolulu, Hawaii, May 17, 2010.

MICHAEL CHAMPLEY

BEFORE THE PUBLIC UTILITIES COMMISSION OF THE

STATE OF HAWAII

In the Matter of PUBLIC UTILITIES COMMISSION Instituting a Proceeding to Investigate the Implementation Of Feed–in Tariffs.	DOCKET NO. 2008-0273

CERTIFICATE OF SERVICE

I HEREBY CERTIFY that on this date a copy of the foregoing document was duly served upon the following individuals by placing a copy of same in the United States Mail, postage prepaid, and/or by electronic service, as follows:

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